



Cecil College and Jefferson College of Health Professions at Thomas Jefferson University

Bachelor of Science and Master of Science

Two-year Option (3+2)

| Fall Semester (Year 1) | | |
|-------------------------------|--------------------------------------|----------------|
| Code | Course Name | Credits |
| BT 303 | Molecular Preparatory Techniques | 3 |
| BT 310 | Fundamental Molecular Techniques | 4 |
| BT 405 | Applied Microbial Biotechnology | 3 |
| LS 301 | Molecular Biology | 3 |
| LS 304 | Biochemistry | 3 |
| LS 305 | Survey of Biotechnology Applications | 3 |
| Total Semester Credits | | 19 |

| Spring Semester (Year 1) | | |
|---------------------------------|---|----------------|
| Code | Course Name | Credits |
| BT 320 | Cell and Tissue Culture Techniques | 4 |
| BT 406 | Introduction to Bioinformatics | 2 |
| BT 410 | Molecular Diagnostic Techniques | 4 |
| BT 411 | Protein Purification and Characterization | 3 |
| BT 603 | Human Genetics | 3 |
| LS 540 | Current Research in the Biosciences | 3 |
| Total Semester Credits | | 19 |

Summer Semester (Optional)

- Biotechnology Skill Building Discussion Group
- Biotechnology Summer Research

| Fall Semester (Year 2) | | |
|-------------------------------|--|----------------|
| Code | Course Name | Credits |
| BT 812 | Biotechnology Practicum I | 3 |
| BT 813 | Biotechnology Practicum II | 3 |
| LS 531 | Immunology | 3 |
| LS 603 | Research Design | 2 |
| LS 640 | Methods in Bioscience Education OR Program-Approved Elective (Courses Listed Below) | 3 |
| TBD | Program-Approved Elective (Courses listed below) | 2-3 |
| LS 804* | Experimental Research I | 1 |
| Total Semester Credits | | 17-18 |

| Spring Semester (Year 2) | | |
|---------------------------------|---|----------------|
| Code | Course Name | Credits |
| BT 814 | Biotechnology Practicum III | 3 |
| BT 815 | Biotechnology Practicum IV | 3 |
| BT 325 | Product Development & Management | 3 |
| LS 610 | Regulatory and Fiscal issues in Laboratory Management | 3 |
| TBD | Program-Approved Elective (Courses listed below) | 2-3 |
| LS 803* | Contemporary Topics Research | 2 |
| LS 805* | Experimental Research II | 1 |
| LS 816 | Comprehensive Examination | 0 |
| Total Semester Credits | | 17-18 |

* To meet the research requirements, students may take a classroom literature review-based course (LS 803) or engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for clinical practica courses nor may run concurrently with practica courses.

TOTAL:

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|--|----------------|
| Credits Required for Admission | 82 |
| Undergraduate Credits-Year One | 38 |
| Graduate Credits-Year Two | 34-36 |
| Total Credits to Degree (minimum) | 154-156 |

Suggested Pre-Approved Elective Courses (See Program Director for Confirmation)

| Code | Course Name | Credits | Semester |
|-------------|-----------------------------------|----------------|-----------------|
| GC 525 | Information System Management | 3 | Fall, Spring |
| GC 526 | Lab Animal Science | 2 | Spring |
| GC 559 | Introduction to R Programming | 3 | Fall |
| GC 645 | Genomics & Bioinformatics | 3 | Spring |
| GC 654 | Pharmacoepidemiology | 2 | Spring |
| GC 660 | Statistical Methods | 3 | Fall, Spring |
| MI 522 | Vaccinology & Immunotherapeutics | 2 | Fall |
| MI 530 | Microbial Pathogenesis of Disease | 2 | Fall |
| MI 540 | Antimicrobial Agents | 3 | Summer |
| MI 580 | Principles of Epidemiology | 3 | Fall, Spring |
| MI 590 | Introduction to Clinical Virology | 2 | Spring |
| PR 522 | General Pharmacology | 3 | Spring |

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| PR 525 | Principles of Clinical Pharmacology (PR 522 prereq) | 3 | Summer |
| PR 526 | Pharmacogenomics | 2 | Spring |
| PR 630 | General Toxicology | 3 | Summer |
| CB 570 | Pathologic Aspects of Disease | 3 | Spring |
| CB 635 | Gene Environ. Interactions Birth Defects & Dis. | 3 | Spring |
| GE 651 | Pathobiology of Cancer | 2 | Spring |
| HCA 300 | Healthcare Services Deliv. & Organ. | 3 | Spring |

For Biotechnology Master's Degree Students (See Program Director for Confirmation)

| Code | Course Name | Credits | Semester |
|--------|---|---------|----------|
| LS 640 | Methods in Bioscience Education | 3 | Fall |
| LS 644 | Laboratory Education & Instruction (Laboratory Teaching Assistant) | 3 | Fall |
| LS 698 | Special Topics in the Laboratory Sciences (Laboratory Teaching Assistant) | 3 | Spring |

For Biotechnology Master's AND Bachelor's Degree Students (See Program Director for Confirmation)

| Code | Course Name | Credits | Semester |
|--------|--|---------|----------------------|
| LS 499 | Independent Study (Biotechnology Research) | 1-3 | Fall, Spring, Summer |
| LS 699 | Independent Study (Biotechnology Research) | 1-3 | Fall, Spring, Summer |